

CLAIMS

1. A display apparatus comprising:
 - a display section;
 - a voice output section;
 - a text code input section for receiving an input text code externally supplied;
 - a display control section for displaying text corresponding to the input text code in the display section; and
 - a voice output control section for outputting voice corresponding to the input text code through the voice output section,

the voice input section outputs the input text code to the display control section and the voice output control section so as to display the text corresponding to the input text code in the display section, and output the voice corresponding to the input text code through the voice output section.

2. The display apparatus as set forth in claim 1, further comprising:

a video signal input section for receiving an input video signal externally supplied,

wherein:

the display control section displays in the display section an image based on the input video signal supplied to the video signal input section, and displays the text corresponding to the input text code so that the text is superimposed on the image.

3. The display apparatus as set forth in claim 2, wherein:

the display section has a plurality of scanning lines arranged in line and a plurality of signal lines arranged in line and respectively intersect with the scanning lines, and

the display control section includes a (i) scanning line drive circuit which serves as a display section drive circuit for driving the display section by sequentially supplying scanning signals to the scanning lines, and a (ii) signal line drive circuit for supplying video signals to the signal lines, the scanning line drive circuit being constituted of a first signal line drive circuit for receiving the video signal from the video signal input section and a second signal line drive circuit for receiving a video signal for displaying the text corresponding to the input text code, the first signal line drive circuit and the second signal line drive circuit sharing the signal lines.

4. The display apparatus as set forth in claim 1,
wherein:

the display section is constituted of a display element
drivable by a thin film element, and the input text code
input section, the display control section, and the voice
output control section are either directly formed on a thin
film substrate on which a pixel driving circuit element of the
display element is formed, or are constituted of active
elements formed on another substrate which is to be bonded
to the thin film substrate.

5. The display apparatus as set forth in claim 2 or
3, wherein:

the display section is constituted of a display element
drivable by a thin film element, and the input text code
input section, the video signal input section, the display
control section, and the voice output control section are
either directly formed on a thin film substrate on which a
pixel driving circuit element of the display element is formed,
or are constituted of active elements formed on another
substrate which is to be bonded to the thin film substrate.

6. A display apparatus comprising:

a display section;

a voice output section;

a video signal input section for receiving an input video signal externally supplied;

a display control section for displaying an image based on the input video signal in the display section;

a text recognizing section for extracting a text portion from the input video signal and converting the text portion into a text code; and

a voice output control section for outputting voice corresponding to the text code through the voice output section,

the video signal input section outputs the input video signal to the display control section and the text recognizing section, and the text recognizing section outputs the text code to the voice output control section, so that an image corresponding to the input video signal is displayed in the display section, and voice corresponding to the text code, which is included in the input video signal and is recognized by the text recognizing section, is outputted from the voice output section.

7. The display apparatus as set forth in claim 6, wherein:

the display section is constituted of a display element drivable by a thin film element, and the video signal input section, the display control section, the text recognizing section, and the voice output control section are either directly formed on a thin film substrate on which a pixel driving circuit element of the display element is formed, or are constituted of active elements formed on another substrate which is to be bonded to the thin film substrate.

8. The display apparatus as set forth in any one of claims 4, 5 and 7, wherein:

the voice output section is constituted of a sound source element which is layered on the display element constituting the display section within a flat region of the display element, sound source element generating voice by vibrating the display element.

9. The display apparatus as set forth in claim 8, wherein:

the sound source element is driven by a sound source element drive section which is either directly formed on the thin film substrate, or is constituted of active elements formed on another substrate which is to be bonded to the thin film substrate.

10. The display apparatus as set forth in any one of claims 4, 5 and 7, wherein:

the thin film substrate includes a thin film layer including a polycrystal silicon thin film.

11. The display apparatus as set forth in any one of claims 4, 5 and 7, wherein:

the thin film substrate includes a thin film layer including a continuous grain boundary crystal silicon thin film.

12. The display apparatus as set forth in any one of claims 4, 5, 7 and 9, wherein:

the another substrate having active elements has a hydrogen ion injection section, the hydrogen ion injection section being adhered to the thin film substrate and heated to be cured so as to combine said another substrate with the thin film substrate.

13. The display apparatus as set forth in any one of claims 1 through 12, wherein:

the display section performs display by liquid crystal.

14. The display apparatus as set forth in any one of claims 1 through 12, wherein:

the display section performs display by an EL layer.